

Claims

SUBA²

1. In a communication system for communication of data, a
2 method comprising:
 detecting a request for opening a connection for a
4 user for communication of data;
 selecting an open connection;
6 releasing said selected open connection;
 allocating, to said user, communication resources
8 corresponding to resources released based on said
releasing said selected open connection.
2. The method as recited in claim 1 wherein said
2 selected open connection is in an idle open state.
3. The method as recited in claim 1 wherein said
2 selected open connection is in a busy open state.
4. The method as recited in claim 1 further comprising:
2 determining whether an open connection is in an idle
open state in said communication system; wherein said
4 selected open connection is said determined open
connection in said idle open state.
5. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in an idle open state;

4 determining an open connection, from said two or more
open connections in said idle open state, with a longest
6 idle open state connection time; wherein said selected
open connection is said determined open connection with
8 said longest idle open state connection.

6. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in an idle open state;

4 determining an open connection, from said two or more
open connections in said idle open state, used to transfer
6 a predetermined amount of data in a predetermined period
of time; wherein said selected open connection is said
8 determined open connection used to transfer said
predetermined amount of data in said predetermined period
10 of time.

7. The method as recited in claim 6 wherein said
2 predetermined amount of data is a largest amount of data
transferred by a user of users of said two or more open
4 connections in said idle open state.

8. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in an idle open state;

4 determining an open connection, from said two or more
open connections in said idle open state, used to transfer
6 data at a predetermined data rate in a predetermined
period of time; wherein said selected open connection is
8 said determined open connection used to transfer data at
said predetermined data rate in said predetermined period
10 of time.

9. The method as recited in claim 8 wherein said
2 predetermined data rate is a highest data rate used by a
user of users of said two or more open connections in said
4 idle open state.

10. The method as recited in claim 8 wherein said
2 predetermined period is a period before a user of users of
said two or more open connections in said idle open state
4 moves to said idle open state.

11. The method as recited in claim 1 further comprising:
2 determining whether two or more open connections are
in an idle open state, wherein said selecting is based on
4 a random selection from said two or more open connections
in said idle open state.

12. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in an idle open state,

4 determining an open connection from said two or more
open connections in said idle open state with a longest
6 combined idle open state connection time and busy open
state connection time; wherein said selected open
8 connection is said determined open connection with said
longest combined idle open state connection time and busy
10 open state connection time.

13. The method as recited in claim 1 further comprising:

2 determining whether an open connection is in a busy
open state and no open connection is in an idle open
4 state; wherein said selected open connection is said open
connection in said busy open state.

14. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in a busy open state and no open connection is in an idle
4 open state;

determining an open connection from said two or more
6 open connections with a longest busy open state connection
time; wherein said selected open connection is said
8 determined connection from said two or more open

connections with said longest busy open state connection
10 time.

15. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in a busy open state and no open connection is in an idle
4 open state;

determining an open connection from said two or more
6 open connections used to transfer a predetermined amount
of data in a predetermined period of time; wherein said
8 selected open connection is said determined open
connection used to transfer said predetermined amount of
10 data in said predetermined period of time.

16. The method as recited in claim 15 wherein said
2 predetermined amount of data is a largest amount of data
transferred by a user or users of said two or more open
4 connections in said busy open state.

17. The method as recited in claim 15 wherein said
2 predetermined period is a period after a user or users of
said two or more open connections in said busy open state
4 move to said busy open state.

18. The method as recited in claim 15 wherein said
2 predetermined period of time is a period of time

immediately preceding said determining said open
4 connection from said two or more open connections used to
transfer said predetermined amount of data in said
6 predetermined period of time.

19. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in a busy open state and no open connection is in an idle
4 open state;

determining an open connection from said two or more
6 open connections in said busy open state used to transfer
data at a predetermined data rate in a predetermined
8 period of time; wherein said selected open connection is
said determined open connection used to transfer data at
10 said predetermined data rate in said predetermined period
of time.

20. The method as recited in claim 19 wherein said
2 predetermined data rate is a highest data rate used by a
user of users of said two or more open connections in said
4 busy open state.

21. The method as recited in claim 19 wherein said
2 predetermined period of time is a period of time
immediately preceding said determining said open
4 connection from said two or more open connections in said

busy open state used to transfer data at said
6 predetermined data rate in said predetermined period of
time.

22. The method as recited in claim 1 further comprising:

2 determining whether two or more open connections are
in a busy open state and no open connection is in an idle
4 open state;

determining an open connection from said two or more
6 open connections with a longest combined idle open state
connection time and busy open state connection time;
8 wherein said selected open connection is said determined
connection with said longest combined idle open state
10 connection time and busy open state connection time.

23. The method as recited in claim 1 further comprising:

2 determining at least an open connection in a busy
open state and at least an open connection in an idle open
4 state in said communication system; wherein said selected
open connection is one of said least open connections.

24. The method as recited in claim 23 wherein said least

2 open connections include two or more open connections in
said busy open state and two or more open connections in
4 said idle open state, further comprising:

determining an open connection from said two or more
6 open connections with a longest idle open state connection
time; wherein said selected open connection is said
8 determined open connection with said longest idle open
state connection time.

25. The method as recited in claim 23 wherein said least
2 open connections include two or more open connections in
said busy open state and two or more open connections in
4 said idle open state, further comprising:

determining an open connection from said two or more
6 open connections with a longest busy open state connection
time; wherein said selected open connection is said
8 determined open connection with said longest busy open
state connection time.

26. The method as recited in claim 23 wherein said least
2 open connections include two or more open connections in
said busy open state and two or more open connections in
4 said idle open state, further comprising:

determining an open connection from said two or more
6 open connections used to transfer a predetermined amount
of data in a predetermined period of time; wherein said
8 selected open connection is said determined open
connection used to transfer said predetermined amount of
10 data in said predetermined period of time.

27. The method as recited in claim 26 wherein said
2 predetermined amount of data is a largest amount of data
transferred by a user of users of said two or more open
4 connections in said busy open state and said idle open
state.

28. The method as recited in claim 26 wherein said period
2 of time is a period of time immediately preceding said
determining said open connection from said two or more
4 open connections used to transfer said predetermined
amount of data in said predetermined period of time.

29. The method as recited in claim 23 wherein said least
2 open connections include two or more open connections in
said busy open state and two or more open connections in
4 said idle open state, further comprising:

determining an open connection from said two or more
6 open connections used to transfer data at a predetermined
data rate in a predetermined period of time; wherein said
8 selected open connection is said determined open
connection from said two or more open connections used to
10 transfer data at said predetermined data rate in said
predetermined period of time.

30. The method as recited in claim 29 wherein said
2 predetermined data rate is a highest data rate used by a
user of users of said two or more open connections.

31. The method as recited in claim 29 wherein said
2 predetermined period of time is a period of time
immediately preceding said determining said open
4 connection from said two or more open connections used to
transfer data at said predetermined data rate in said
6 predetermined period of time.

32. The method as recited in claim 23 wherein said least
2 open connections include two or more open connections in
said busy open state and two or more open connections in
4 said idle open state, further comprising:

determining an open connection from said two or more
6 open connections with a longest combined idle open state
connection time and busy open state connection time;
8 wherein said selected open connection is said determined
connection with said longest combined idle open state
10 connection time and busy open state connection time.

33. The method as recited in claim 1 further comprising
2 the step of:

detecting an overload condition in said communication
4 system.

34. The method as recited in claim 33 wherein said
2 detecting includes:

detecting a predetermined number of existing
4 connections; wherein said overload condition is based on
said number of existing connections.

35. The method as recited in claim 33 wherein said
2 detecting includes:

monitoring utilization and activity of a reverse
4 link; wherein said overload condition is based on a level
of said utilization and activity.

36. In a communication system for communication of data, a
2 method comprising:

detecting an overload condition in said communication
4 system;

selecting an open connection;

6 releasing said selected open connection based on said
overload condition.

37. The method as recited in claim 36 further comprising:

2 detecting a request for opening a connection for a
user for communication of data;

4 allocating, to said user, communication resources
corresponding to resources released based on said
6 releasing said selected open connection.

38. The method as recited in claim 36 further comprising:
2 detecting a predetermined number of existing
connections; wherein said overload condition is based on
4 said number of existing connections.

39. The method as recited in claim 36 wherein said
2 selected open connection is in an idle open state.

40. The method as recited in claim 36 wherein said
2 selected open connection is in a busy open state.

41. In a communication system, an apparatus comprising:
2 a resource manager for managing a plurality of
resources in said communication system;

4 a plurality of connection controllers in
communication with said resource manager for making
6 requests for allocating communication resources to a
connection;

8 wherein said resource manager is configured to select
one of said plurality of resources, to detect a request
10 for opening a connection for a user for communication of
data, and to release said selected open connection for
12 allocating, to said user, communication resources

corresponding to resources released based on said release
14 of said selected open connection.

42. The apparatus as recited in claim 41 wherein said
2 selected open connection is in an idle open state.

43. The apparatus as recited in claim 41 wherein said
2 selected open connection is in a busy open state.

44. In a communication system for communication of data,
2 a method comprising:

detecting a request for opening a connection for a
4 user for communication of data;

determining whether an open connection is in an idle
6 open state in said communication system;

selecting said idle open state connection;

8 releasing said selected idle open state connection;

allocating, to said user, communication resources
10 corresponding to resources released based on said
releasing.

45. In a communication system for communication of data,
2 a method comprising:

detecting a request for opening a connection for a
4 user for communication of data;

selecting an open connection based on a grade of
6 service assigned to said open connection;
releasing said selected open connection;
8 allocating, to said user, communication resources
corresponding to resources released based on said
10 releasing said selected open connection.

46. The method as recited in claim 45 wherein said
2 selected open connection is in an idle open state.

47. The method as recited in claim 45 wherein said
2 selected open connection is in a busy open state.

48. The method as recited in claim 45 further comprising:
2 determining whether an open connection is in an idle
open state in said communication system; wherein said
4 selected open connection is said determined open
connection in said idle open state.

49. The method as recited in claim 45 further comprising:
2 determining whether two or more open connections are
in an idle open state;

4 determining an open connection, from said two or more
open connections in said idle open state, with a longest
6 idle open state connection time; wherein said selected

open connection is said determined open connection with
8 said longest idle open state connection.

50. The method as recited in claim 45 further comprising:

2 determining whether two or more open connections are
in an idle open state;

4 determining an open connection, from said two or more
open connections in said idle open state, used to transfer
6 a predetermined amount of data in a predetermined period
of time; wherein said selected open connection is said
8 determined open connection used to transfer said
predetermined amount of data in said predetermined period
10 of time.